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Harry Macey

In re Application of:

Nguyen, et al.

Serial No.: 09/828,335

Filing Date: April 5, 2001

Title: MULTIPLE LOOP TISSUE  
CONNECTOR APPARATUS AND  
METHODS

Examiner: U. Ho

Group Art Unit: 3731

TRANSMITTAL

Mail Stop Amendment  
Commissioner for Patents  
Alexandria, VA 22313

Sir:

Transmitted herewith are the following:

1. Fee Transmittal (1 pg) with a duplicate copy (1 pg)
2. Amendment (3 pgs)
3. Replacement Drawings (24 pgs)
4. Supplemental Information Disclosure Statement (2 pgs)
5. Substitute Form 1449A (1 pg) and a copy of all cited references
6. Copy of Request for Corrected/Reprinted Patent for  
U.S. Patent No. 6,607,541 (2 pgs)
7. Copy of Appendix A (9 pgs)
8. Copy of Appendix B (9 pgs)

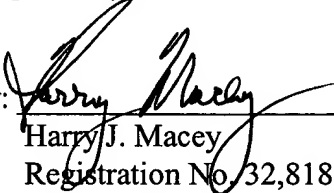
[X] Authorization to charge the \$180.00 fee for the Supplemental Information Disclosure Statement to Deposit Account No. 50-1947 is provided on the Fee Transmittal. A duplicate copy of that document is enclosed.

- ☐ The Commissioner is hereby authorized to charge any fees required by this submission to Deposit Account No. 50-1947 referencing Attorney Docket No. \*.
- ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment, to Deposit Account No. 50-1947, referencing Attorney Docket No. CSI-2015.

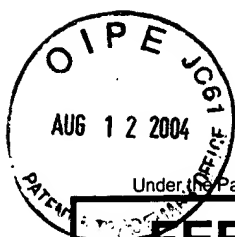
Respectfully submitted,

Date: August 12, 2004

By:

  
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PTO/SB/17 (10-03)

Approved for use through 07/31/2006. OMB 0651-0032

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# FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☒ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$180.00)

**Complete if Known**

Application Number	09/828,335
Filing Date	April 5, 2001
First Named Inventor	John D. Nguyen
Examiner Name	U. Ho
Art Unit	3731
Attorney Docket No.	CSI-2015

**METHOD OF PAYMENT (check all that apply)**☐ Check ☐ Credit Card ☐ Money Order ☐ Other ☐ None☒ Deposit Account:Deposit Account Number  
Deposit Account Name

50-1947

LAW OFFICE OF HARRY J. MACEY

The Director is authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☒ Credit any overpayments☒ Charge Any Additional Fee(s) Required under 37 C.F.R. 1.17.☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.**FEE CALCULATION****1. BASIC FILING FEE**

Large Fee Code	Entity Fee	Small Fee Code	Fee Description	Fee Paid
1001	770	2001	385 Utility filing fee	
1002	340	2002	170 Design filing fee	
1003	530	2003	265 Plant filing fee	
1004	770	2004	385 Reissue filing fee	
1005	160	2005	80 Provisional filing fee	
SUBTOTAL (1) (\$)				0.00

**2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE**

	Extra Claims	Fee from below	Fee Paid
Total Claims	-20** =	x	=
Indep. Claims	-3** =	x	=
Multiple Dependent			=

Large Fee Code	Entity Fee	Small Fee Code	Fee Description	Fee Paid
1202	18	2202	9 Claims in excess of 20	
1201	86	2201	43 Independent claims in excess of 3	
1203	290	2203	145 Multiple dependent claim, if not paid	
1204	86	2204	43 ** Reissue independent claims over original patent	
1205	18	2205	9 ** Reissue claims in excess of 20 and over original patent	
SUBTOTAL (2) (\$)				0.00

\*\*or number previously paid, if greater; For Reissues, see above.

**3. ADDITIONAL FEES**

Large Entity Small Entity

Fee Code	Fee (\$)	Fee Code	Fee (\$)	Fee Description
1051	130	2051	65	Surcharge - late filing fee or oath
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet
1053	130	1053	130	Non-English specification
1812	2,520	1812	2,520	For filing a request for <i>ex parte</i> reexamination
1804	920*	1804	920*	Requesting publication of SIR prior to Examination action
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action
1251	110	2251	55	Extension for reply within first month
1252	420	2252	210	Extension for reply within second month
1253	950	2253	475	Extension for reply within third month
1254	1,480	2254	740	Extension for reply within fourth month
1255	2,010	2255	1,005	Extension for reply within fifth month
1401	330	2401	165	Notice of Appeal
1402	330	2402	165	Filing a brief in support of an appeal
1403	290	2403	145	Request for oral hearing
1451	1,510	1451	1,510	Petition to institute a public use proceeding
1452	110	2452	55	Petition to revive - unavoidable
1453	1,330	2453	665	Petition to revive - unintentional
1501	1,330	2501	665	Utility issue fee (or reissue)
1502	480	2502	240	Design issue fee
1503	640	2503	320	Plant issue fee
1406	130	1460	130	Petitions to the Commissioner
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)
1806	180	1806	180	Submission of Information Disclosure Stmt
8021	40	8021	40	Recording each patent assignment per property (times number of properties)
1809	770	2809	385	Filing a submission after final rejection (37 CFR § 1.129(a))
1810	770	2810	385	For each additional invention to be examined (37 CFR § 1.129(b))
1801	770	2801	385	Request for Continued Examination (RCE)
1802	900	1802	900	Request for expedited examination of a design application

Other fee (specify) \_\_\_\_\_

\*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$180.00)

**SUBMITTED BY****Complete (if applicable)**

Name (Print/Type)	Harry J. Macey	Registration No. (Attorney/Agent)	32,818	Telephone	850-654-9555
Signature		Date	August 12, 2004		

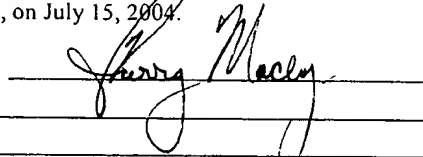
**WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**

This collection of information is required by 37 CFR 1.17 and 1.27. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

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**CERTIFICATE OF MAILING BY "FIRST CLASS MAIL"**

I hereby certify that this correspondence and the accompanying documents are being deposited with the United States Postal Service as first class mail in an envelope addressed to: Certificate of Correction Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on July 15, 2004.

  
\_\_\_\_\_  
Harry Macey

<b>REQUEST FOR CORRECTED/REPRINTED PATENT</b>  Address to: Certificate of Correction Branch Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450	Attorney Docket	CSI-2006
	First Named Inventor	Barry Gardiner
	Patent Number	6,607,541
	Issue Date	August 19, 2003
	Application Number	09/089,884
	Filing Date	June 3, 1998
	Title: TISSUE CONNETOR APPARATUS AND METHODS	

Sir:

The Applicants for the above-referenced patent hereby request the issuance of a corrected/reprinted patent in view of numerous errors that the U.S. Patent and Trademark Office (hereafter the "Office") made in printing the above-referenced patent. The Office did not print allowed independent claims 13 and 25, printed claim number 27 lacks any text, and the printed claims are replete with inaccurate claim language and inaccurate claim dependencies. Transmitted herewith is a listing of the claims as allowed (Appendix A) and the allowed claims renumbered (Appendix B) for printing with the corrected/reprinted patent. The errors in the claims of the printed patent are summarized below.

- Claim 3 should be corrected to depend from claim 1.
- Claim 8 should be corrected to depend from claim 6.
- Claim 9 should be corrected to depend from claim 6.
- Claim 10 should be corrected to depend from claim 6.
- Claim 11 should be corrected to depend from claim 1.
- Claim 13 should be corrected to depend from claim 11.
- Claim 16 should be corrected to depend from claim 11.
- Claim 21 should be corrected to depend from claim 16.
- Claim 22 should be corrected to depend from claim 16.

Claim 23 should be corrected to depend from claim 1.

Claim 27 was printed without any text. Allowed claim 13, which did not appear on the issued patent, should be inserted therein as shown in Appendix B.

Claim 28: The spelling of "including" and "surrounding" should be corrected.

Claims 32-40: It is not clear how these claims correspond to the allowed claims. Claims 32-40 as shown in Appendix B should be inserted in their stead. Claim 32 of Appendix B corresponds to allowed claim 25 of Appendix A, which does not appear in the issued patent.

Claim 41: The spelling of "needle" in the penultimate line of the claim should be corrected.

Claim 50 should be corrected to depend from claim 46 and the spelling of "said" corrected on line two of the claim.

Claim 58 should be corrected to include the text "and said flexible member comprises a suture" at the end of the claim in accordance with the Examiner's amendment and as shown in Appendix B.

Claim 62 should be corrected to depend from claim 56.

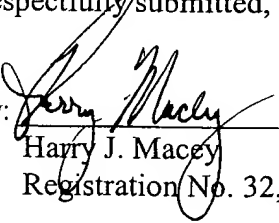
The Applicants submit that the nature of the mistakes on the part of the Office is such that a Certificate of Correction would be inappropriate in form and respectfully request that the Commissioner issue a corrected patent in lieu of a Certificate of Correction as a more appropriate form of correction and to clearly show what claims issued in the patent. 35 U.S.C. § 254; 37 C.F.R. § 1.322(b). The Applicants further submit that the claims in the corrected/reprinted patent should correspond to the claims as listed in Appendix B.

It is believed that no fee is due since the Office made the foregoing errors. However, the Commissioner is hereby authorized to charge any fees under 37 C.F.R. § 1.20, which may be required by this paper, to Deposit Account No. 50-1947 Attorney Docket No. CSI-2006.

Respectfully submitted,

Date: July 15, 2004

By:

  
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UNITED STATES PATENT AND TRADEMARK OFFICE  
APPENDIX A

Allowed Claims: 2-22, 25-29, 48-73, and 75-106

PATENT NO. 6,607,541  
SERIAL NO. 09/089,884  
DATED: August 19, 2003  
INVENTORS(S) Gardiner, et al.

1. Cancelled
2. A tissue connector assembly comprising a flexible member, a coupling with a release mechanism, and a surgical clip, said surgical clip being releasably coupled to said flexible member through said coupling, wherein said flexible member comprises a suture.
3. The tissue connector assembly of claim 2 further including a needle, said needle being coupled to said flexible member.
4. The tissue connector assembly of claim 2 further including a tapered portion extending between said surgical clip and flexible member.
5. The tissue connector assembly of claim 4 wherein said tapered portion is curved.
6. The tissue connector assembly of claim 2 wherein said coupling with release mechanism comprises a locking device, said locking device having a locked position where said surgical clip is coupled to said flexible member and an unlocked position where said surgical clip is released from said flexible member.
7. The tissue connector assembly of claim 2 wherein said surgical clip comprises a wire.
8. The tissue connector assembly of claim 7 wherein said wire is tubular.
9. The tissue connector assembly of claim 7 wherein said wire has a generally circular transverse cross-section.

10. The tissue connector of claim 7 wherein said wire comprises shape memory material.

11. The tissue connector assembly of claim 7 wherein said wire has a first end portion, a second end portion, and an elongated member therebetween, said first end portion being coupled to said flexible member, said second end portion having a cross-sectional area greater than a cross-sectional area of said elongated member.

12. The tissue connector assembly of claim 2 wherein said surgical clip has an open configuration and a closed configuration.

13. A tissue connector assembly comprising a flexible member, a needle, and a surgical clip, said surgical clip being releasably coupled to said flexible member which is coupled to said needle; said surgical clip has an open configuration and a closed configuration, said surgical clip is in said closed configuration when in a relaxed position.

14. The tissue connector assembly of claim 12 wherein said surgical clip is generally U-shaped when in said open configuration.

15. The tissue connector assembly of claim 12 wherein said surgical clip assumes a spiral configuration when in said closed configuration.

16. The tissue connector assembly of claim 15 wherein said surgical clip spirals around a central longitudinal axis, said surgical clip having a generally conical shape along said longitudinal axis.

17. The tissue connector assembly of claim 16 wherein said surgical clip has an inner end portion and an outer end portion, said inner end portion having a smaller radius than said outer end portion, said inner end portion of said surgical clip being coupled to said flexible member.

18. The tissue connector assembly of claim 12 further comprising a restraining device coupled to said clip and biasing said clip in said open configuration.

19. The tissue connector assembly of claim 18 wherein said restraining device comprises a coil surrounding at least a portion of said surgical clip.

20. The tissue connector assembly of claim 19 wherein said coil comprises a plurality of adjacent loops, said coil being compressed with said plurality of adjacent loops being spaced closer to one another along one side of said coil than along an opposite side of said coil when said surgical clip is coupled to said flexible member.

21. The tissue connector assembly of claim 18 wherein at least a portion of said restraining device remains on said surgical clip when said clip is released from said flexible member.

22. The tissue connector assembly of claim 18 wherein said surgical clip comprises a tubular wire and said restraining device comprises an elongated member positioned within said wire.

23-24. Cancelled

25. A tissue connector assembly comprising a suture having first and second end portions, a needle secured to one of said end portions, a coupling and a surgical clip releasably coupled to the other of said end portions through said coupling, said coupling being between said surgical clip and the other of said end portions.

26. The tissue connector assembly of claim 25 wherein said clip comprises a wire.

27. The tissue connector assembly of claim 26 wherein said wire comprises shape memory material.

28. The tissue connector assembly of claim 25 wherein said clip has an open configuration and a closed configuration.

29. The tissue connector assembly of claim 28 wherein said clip is generally U-shaped when in said open configuration.

30-47. Cancelled

48. The tissue connector assembly of claim 49, wherein said flexible member comprises a suture.



49. A tissue connector assembly comprising: a flexible member; a surgical clip; and a coupling with a release mechanism between said flexible member and said surgical clip, where said surgical clip and said flexible member are releasably coupled through said release mechanism, further including a needle, said needle being coupled to said flexible member.

50. The tissue connector assembly of claim 49, further including a tapered portion extending between said surgical clip and flexible member.

51. The tissue connector assembly of claim 50, wherein said tapered portion is curved.

52. The tissue connector assembly of claim 49, wherein said release mechanism is a locking device having a locked position where said surgical clip is coupled to said flexible member and an unlocked position where said surgical clip is released from said flexible member.

53. The tissue connector assembly of claim 49, wherein said surgical clip comprises a wire.

54. The tissue connector assembly of claim 53, wherein said wire is tubular.

55. The tissue connector assembly of claim 53, wherein said wire has a generally circular transverse cross-section.

56. The tissue connector of claim 53, wherein said wire comprises shape memory material.

57. The tissue connector assembly of claim 53, wherein said wire has a first end portion, a second end portion, and an elongated member therebetween, said first end portion being coupled to said flexible member, said second end portion having a cross-sectional area greater than a cross-sectional area of said elongated member.

58. A tissue connector assembly comprising a flexible member, a coupling, and a self-closing surgical clip, said surgical clip being releasably coupled to said flexible member through said coupling and said flexible member comprising a suture.

59. The tissue connector assembly of claim 58, wherein said surgical clip has an open configuration and a closed configuration.

60. The tissue connector assembly of claim 59, wherein said surgical clip is in said closed configuration when in a relaxed position.

61. The tissue connector assembly of claim 59, wherein said surgical clip is generally U-shaped when in said open configuration.

62. The tissue connector assembly of claim 59, wherein said surgical clip assumes a spiral configuration when in said closed configuration.

63. The tissue connector assembly of claim 62, wherein said surgical clip spirals around a central longitudinal axis, said surgical clip having a generally conical shape along said longitudinal axis.

64. The tissue connector assembly of claim 63, wherein said surgical clip has an inner end portion and an outer end portion, said inner end portion having a smaller radius than said outer end portion, said inner end portion of said surgical clip being coupled to said flexible member.

65. The tissue connector assembly of claim 59, further comprising a restraining device coupled to said clip and biasing said clip in said open configuration.

66. The tissue connector assembly of claim 65, wherein said restraining device comprises a coil surrounding at least a portion of said surgical clip.

67. The tissue connector assembly of claim 66, wherein said coil comprises a plurality of adjacent loops, said coil being compressed with said plurality of adjacent loops being spaced closer to one another along one side of said coil than along an opposite side of said coil when said surgical clip is coupled to said flexible member.

68. The tissue connector assembly of claim 65, wherein at least a portion of said restraining device remains on said surgical clip when said clip is released from said flexible member.

69. The tissue connector assembly of claim 65, wherein said surgical clip comprises a tubular wire and said restraining device comprises an elongated member positioned within said wire.

70. A tissue connector assembly comprising a suture having first and second end portions, a needle secured to one of said end portions, and a surgical clip coupled to the other of said end portions, where said clip has an open configuration and a closed configuration, and where said clip moves to said closed configuration when uncoupled from said suture.

71. The tissue connector assembly of claim 70, wherein said clip comprises a wire.

72. The tissue connector assembly of claim 71, wherein said wire comprises shape memory material.

73. The tissue connector assembly of claim 70, wherein said clip is generally U-shaped when in said open configuration.

74. Cancelled

75. A tissue connector assembly comprising a suture having first and second end portions, a surgical clip comprising shape memory material, and a needle, said needle being secured to one of said end portions and said surgical clip being coupled to the other of said end portions, further including a coupling, said suture being releasably coupled to said surgical clip through said coupling.

76. The tissue connector assembly of claim 75 further including a coil surrounding at least a portion of said surgical clip.

77. The tissue connector assembly of claim 76 wherein said clip has an open configuration and closed configuration and a stop extending therefrom, said coil being compressed between said coupling and said stop so as to bias said clip from said closed configuration to said open configuration.

78. The tissue connector assembly of claim 77 wherein said surgical clip comprises nitinol.

79. The tissue connector assembly of claim 19 wherein said surgical clip comprises shape memory material and has a stop extending therefrom, said coil being compressed against said stop so as to bias said clip from said closed configuration to said open configuration.

80. The tissue connector assembly of claim 79 wherein said surgical clip comprises nitinol.

81. The tissue connector assembly of claim 66 wherein said surgical clip comprises shape memory material and has a stop extending therefrom, said coil being compressed against said stop so as to bias said clip from said closed configuration to said open configuration.

82. The tissue connector assembly of claim 81 wherein said surgical clip comprises nitinol.

83. The tissue connector assembly of claim 2 further including a coil surrounding at least a portion of said surgical clip.

84. The tissue connector assembly of claim 83 wherein said clip has an open configuration and closed configuration and a stop extending therefrom, said coil being compressed between said coupling and said stop so as to bias said clip from said closed configuration to said open configuration.

85. The tissue connector assembly of claim 84 wherein said surgical clip comprises shape memory material.

86. The tissue connector of assembly claim 85 wherein said clip has an enlarged portion for engaging said coupling.

87. The tissue connector assembly of claim 13 further including a coil surrounding at least a portion of said surgical clip.

88. The tissue connector assembly of claim 87 wherein said clip has a stop extending therefrom, said coil being compressed between said coupling and said stop so as to bias said clip from said closed configuration to said open configuration.

89. The tissue connector assembly of claim 88 wherein said surgical clip comprises shape memory material.

90. The tissue connector assembly of claim 89 wherein said clip has an enlarged portion for engaging said coupling.

91. The tissue connector assembly of claim 25 further including a coil surrounding at least a portion of said surgical clip.

92. The tissue connector assembly of claim 91 wherein said clip has an open configuration and closed configuration and a stop extending therefrom, said coil being compressed between said coupling and said stop so as to bias said clip from said closed configuration to said open configuration.

93. The tissue connector assembly of claim 92 wherein said surgical clip comprises shape memory material.

94. The tissue connector assembly of claim 93 wherein said clip has an enlarged portion for engaging said coupling.

95. The tissue connector assembly of claim 49 further including a coil surrounding at least a portion of said surgical clip.

96. The tissue connector assembly of claim 95 wherein said clip has an open configuration and closed configuration and a stop extending therefrom, said coil being compressed between said coupling and said stop so as to bias said clip from said closed configuration to said open configuration.

97. The tissue connector assembly of claim 96 wherein said surgical clip comprises shape memory material.

98. The tissue connector of assembly claim 97 wherein said clip has an enlarged portion for engaging said coupling.

99. The tissue connector assembly of claim 58 further including a coil surrounding at least a portion of said surgical clip.

100. The tissue connector assembly of claim 99 wherein said clip has an open configuration and closed configuration and a stop extending therefrom, said coil being compressed between said coupling and said stop so as to bias said clip from said closed configuration to said open configuration.

101. The tissue connector assembly of claim 100 wherein said surgical clip comprises shape memory material.

102. The tissue connector assembly of claim 101 wherein said clip has an enlarged portion for engaging said coupling.

103. The tissue connector assembly of claim 70 further including a coil surrounding at least a portion of said surgical clip.

104. The tissue connector assembly of claim 103 wherein said clip has a stop extending therefrom, said coil being compressed between said coupling and said stop so as to bias said clip from said closed configuration to said open configuration.

105. The tissue connector assembly of claim 104 wherein said surgical clip comprises shape memory material.

106. The tissue connector assembly of claim 105 wherein said clip has an enlarged portion for engaging said coupling.

UNITED STATES PATENT AND TRADEMARK OFFICE  
APPENDIX B  
CLAIMS FOR CORRECTED/REPRINTED PATENT

PATENT NO. 6,607,541  
SERIAL NO. 09/089,884  
DATED: August 19, 2003  
INVENTORS(S) Gardiner, et al.

The claims from column 12, line 52 through the end of column 16 should read as follows:

1. A tissue connector assembly comprising a flexible member, a coupling with a release mechanism, and a surgical clip, said surgical clip being releasably coupled to said flexible member through said coupling, wherein said flexible member comprises a suture.
2. The tissue connector assembly of claim 1 further including a needle, said needle being coupled to said flexible member.
3. The tissue connector assembly of claim 1 further including a tapered portion extending between said surgical clip and flexible member.
4. The tissue connector assembly of claim 3 wherein said tapered portion is curved.
5. The tissue connector assembly of claim 1 wherein said coupling with release mechanism comprises a locking device, said locking device having a locked position where said surgical clip is coupled to said flexible member and an unlocked position where said surgical clip is released from said flexible member.
6. The tissue connector assembly of claim 1 wherein said surgical clip comprises a wire.
7. The tissue connector assembly of claim 6 wherein said wire is tubular.
8. The tissue connector assembly of claim 6 wherein said wire has a generally circular transverse cross-section.
9. The tissue connector of claim 6 wherein said wire comprises shape memory material.

10. The tissue connector assembly of claim 6 wherein said wire has a first end portion, a second end portion, and an elongated member therebetween, said first end portion being coupled to said flexible member, said second end portion having a cross-sectional area greater than a cross-sectional area of said elongated member.

11. The tissue connector assembly of claim 1 wherein said surgical clip has an open configuration and a closed configuration.

12. The tissue connector assembly of claim 11 wherein said surgical clip is generally U-shaped when in said open configuration.

13. The tissue connector assembly of claim 11 wherein said surgical clip assumes a spiral configuration when in said closed configuration.

14. The tissue connector assembly of claim 13 wherein said surgical clip spirals around a central longitudinal axis, said surgical clip having a generally conical shape along said longitudinal axis.

15. The tissue connector assembly of claim 14 wherein said surgical clip has an inner end portion and an outer end portion, said inner end portion having a smaller radius than said outer end portion, said inner end portion of said surgical clip being coupled to said flexible member.

16. The tissue connector assembly of claim 11 further comprising a restraining device coupled to said clip and biasing said clip in said open configuration.

17. The tissue connector assembly of claim 16 wherein said restraining device comprises a coil surrounding at least a portion of said surgical clip.

18. The tissue connector assembly of claim 17 wherein said coil comprises a plurality of adjacent loops, said coil being compressed with said plurality of adjacent loops being spaced closer to one another along one side of said coil than along an opposite side of said coil when said surgical clip is coupled to said flexible member.

19. The tissue connector assembly of claim 17 wherein said surgical clip comprises shape memory material and has a stop extending therefrom, said coil being compressed against said stop so as to bias said clip from said closed configuration to said open configuration.



20. The tissue connector assembly of claim 19 wherein said surgical clip comprises nitinol.

21. The tissue connector assembly of claim 16 wherein at least a portion of said restraining device remains on said surgical clip when said clip is released from said flexible member.

22. The tissue connector assembly of claim 16 wherein said surgical clip comprises a tubular wire and said restraining device comprises an elongated member positioned within said wire.

23. The tissue connector assembly of claim 1 further including a coil surrounding at least a portion of said surgical clip.

24. The tissue connector assembly of claim 23 wherein said clip has an open configuration and closed configuration and a stop extending therefrom, said coil being compressed between said coupling and said stop so as to bias said clip from said closed configuration to said open configuration.

25. The tissue connector assembly of claim 24 wherein said surgical clip comprises shape memory material.

26. The tissue connector of assembly claim 25 wherein said clip has an enlarged portion for engaging said coupling.

27. A tissue connector assembly comprising a flexible member, a needle, and a surgical clip, said surgical clip being releasably coupled to said flexible member which is coupled to said needle; said surgical clip has an open configuration and a closed configuration, said surgical clip is in said closed configuration when in a relaxed position.

28. The tissue connector assembly of claim 27 further including a coil surrounding at least a portion of said surgical clip.

29. The tissue connector assembly of claim 28 wherein said clip has a stop extending therefrom, said coil being compressed between said coupling and said stop so as to bias said clip from said closed configuration to said open configuration.

30. The tissue connector assembly of claim 29 wherein said surgical clip comprises shape memory material.

31. The tissue connector assembly of claim 30 wherein said clip has an enlarged portion for engaging said coupling.

32. A tissue connector assembly comprising a suture having first and second end portions, a needle secured to one of said end portions, a coupling and a surgical clip releasably coupled to the other of said end portions through said coupling, said coupling being between said surgical clip and the other of said end portions.

33. The tissue connector assembly of claim 32 wherein said clip comprises a wire.

34. The tissue connector assembly of claim 33 wherein said wire comprises shape memory material.

35. The tissue connector assembly of claim 32 wherein said clip has an open configuration and a closed configuration.

36. The tissue connector assembly of claim 35 wherein said clip is generally U-shaped when in said open configuration.

37. The tissue connector assembly of claim 32 further including a coil surrounding at least a portion of said surgical clip.

38. The tissue connector assembly of claim 37 wherein said clip has an open configuration and closed configuration and a stop extending therefrom, said coil being compressed between said coupling and said stop so as to bias said clip from said closed configuration to said open configuration.

39. The tissue connector assembly of claim 38 wherein said surgical clip comprises shape memory material.

40. The tissue connector assembly of claim 39 wherein said clip has an enlarged portion for engaging said coupling.

41. A tissue connector assembly comprising: a flexible member; a surgical clip; and a coupling with a release mechanism between said flexible member and said surgical clip, where said surgical clip and said flexible member are releasably coupled through said release mechanism, further including a needle, said needle being coupled to said flexible member.

42. The tissue connector assembly of claim 41, wherein said flexible member comprises a suture.

43. The tissue connector assembly of claim 41, further including a tapered portion extending between said surgical clip and flexible member.

44. The tissue connector assembly of claim 43, wherein said tapered portion is curved.

45. The tissue connector assembly of claim 41, wherein said release mechanism is a locking device having a locked position where said surgical clip is coupled to said flexible member and an unlocked position where said surgical clip is released from said flexible member.

46. The tissue connector assembly of claim 41, wherein said surgical clip comprises a wire.

47. The tissue connector assembly of claim 46, wherein said wire is tubular.

48. The tissue connector assembly of claim 46, wherein said wire has a generally circular transverse cross-section.

49. The tissue connector of claim 46, wherein said wire comprises shape memory material.

50. The tissue connector assembly of claim 46, wherein said wire has a first end portion, a second end portion, and an elongated member therebetween, said first end portion being coupled to said flexible member, said second end portion having a cross-sectional area greater than a cross-sectional area of said elongated member.

51. The tissue connector assembly of claim 41 further including a coil surrounding at least a portion of said surgical clip.

52. The tissue connector assembly of claim 51 wherein said clip has an open configuration and closed configuration and a stop extending therefrom, said coil being compressed between said coupling and said stop so as to bias said clip from said closed configuration to said open configuration.

53. The tissue connector assembly of claim 52 wherein said surgical clip comprises shape memory material.

54. The tissue connector of assembly claim 53 wherein said clip has an enlarged portion for engaging said coupling.

55. A tissue connector assembly comprising a flexible member, a coupling, and a self-closing surgical clip, said surgical clip being releasably coupled to said flexible member through said coupling and said flexible member comprising a suture.

56. The tissue connector assembly of claim 55, wherein said surgical clip has an open configuration and a closed configuration.

57. The tissue connector assembly of claim 56, wherein said surgical clip is in said closed configuration when in a relaxed position.

58. The tissue connector assembly of claim 56, wherein said surgical clip is generally U-shaped when in said open configuration.

59. The tissue connector assembly of claim 56, wherein said surgical clip assumes a spiral configuration when in said closed configuration.

60. The tissue connector assembly of claim 59, wherein said surgical clip spirals around a central longitudinal axis, said surgical clip having a generally conical shape along said longitudinal axis.

61. The tissue connector assembly of claim 60, wherein said surgical clip has an inner end portion and an outer end portion, said inner end portion having a smaller radius than said outer end portion, said inner end portion of said surgical clip being coupled to said flexible member.

62. The tissue connector assembly of claim 56, further comprising a restraining device coupled to said clip and biasing said clip in said open configuration.

63. The tissue connector assembly of claim 62, wherein said restraining device comprises a coil surrounding at least a portion of said surgical clip.

64. The tissue connector assembly of claim 63, wherein said coil comprises a plurality of adjacent loops, said coil being compressed with said plurality of adjacent loops being spaced closer to one another along one side of said coil than along an opposite side of said coil when said surgical clip is coupled to said flexible member.

65. The tissue connector assembly of claim 63 wherein said surgical clip comprises shape memory material and has a stop extending therefrom, said coil being compressed against said stop so as to bias said clip from said closed configuration to said open configuration.

66. The tissue connector assembly of claim 65 wherein said surgical clip comprises nitinol.

67. The tissue connector assembly of claim 62, wherein at least a portion of said restraining device remains on said surgical clip when said clip is released from said flexible member.

68. The tissue connector assembly of claim 62, wherein said surgical clip comprises a tubular wire and said restraining device comprises an elongated member positioned within said wire.

69. The tissue connector assembly of claim 55 further including a coil surrounding at least a portion of said surgical clip.

70. The tissue connector assembly of claim 69 wherein said clip has an open configuration and closed configuration and a stop extending therefrom, said coil being compressed between said coupling and said stop so as to bias said clip from said closed configuration to said open configuration.

71. The tissue connector assembly of claim 70 wherein said surgical clip comprises shape memory material.

72. The tissue connector assembly of claim 71 wherein said clip has an enlarged portion for engaging said coupling.

73. A tissue connector assembly comprising a suture having first and second end portions, a needle secured to one of said end portions, and a surgical clip coupled to the other of said end portions, where said clip has an open configuration and a closed configuration, and where said clip moves to said closed configuration when uncoupled from said suture.

74. The tissue connector assembly of claim 73, wherein said clip comprises a wire.

75. The tissue connector assembly of claim 74, wherein said wire comprises shape memory material.

76. The tissue connector assembly of claim 73, wherein said clip is generally U-shaped when in said open configuration.

77. The tissue connector assembly of claim 73 further including a coil surrounding at least a portion of said surgical clip.

78. The tissue connector assembly of claim 77 wherein said clip has a stop extending therefrom, said coil being compressed between said coupling and said stop so as to bias said clip from said closed configuration to said open configuration.

79. The tissue connector assembly of claim 78 wherein said surgical clip comprises shape memory material.

80. The tissue connector assembly of claim 79 wherein said clip has an enlarged portion for engaging said coupling.

81. A tissue connector assembly comprising a suture having first and second end portions, a surgical clip comprising shape memory material, and a needle, said needle being secured to one of said end portions and said surgical clip being coupled to the other of said end portions, further including a coupling, said suture being releasably coupled to said surgical clip through said coupling.

82. The tissue connector assembly of claim 81 further including a coil surrounding at least a portion of said surgical clip.

83. The tissue connector assembly of claim 82 wherein said clip has an open configuration and closed configuration and a stop extending therefrom, said coil being compressed between said coupling and said stop so as to bias said clip from said closed configuration to said open configuration.

84. The tissue connector assembly of claim 83 wherein said surgical clip comprises nitinol.